

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) Apparatus for heating a bitumen froth by steam, the apparatus comprising:

a heater body comprising a bitumen froth inlet for receiving bitumen froth, a steam inlet for receiving steam, and a mixture outlet; and
a baffle disposed across the mixture outlet; and

a static mixer body having first and second spaced ends and forming an enclosed passageway extending between the first and second ends, wherein the first end is in communication with the mixture outlet, the static mixer body supporting a plurality of baffles disposed to effect a mixing action of material flowing through the enclosed passageway thereof;

wherein the steam inlet is disposed to inject the steam into the heater body towards the enclosed passageway in a direction generally parallel to the longitudinal axis of the enclosed passageway; and

wherein the apparatus is operably configured to direct substantially all of the bitumen froth and steam through the mixture outlet, into the enclosed passageway and out the second end of the static mixer body, including when the enclosed passageway is disposed parallel or about parallel to the horizontal axis.

2. (Currently Amended) The apparatus of claim 1 wherein the baffles are disposed within the static mixer body to impart a lateral, radial, tangential or circumferential directional component to a material flow through said static mixer enclosed passageway that changes repeatedly along the length of the enclosed passageway.

3. (Previously Presented) The apparatus of claim 1 further comprising a steam flow control valve to control a rate of steam supply to the steam inlet from a steam source.

4. (Currently Amended) The apparatus of claim 3 further comprising a temperature transmitter disposed to measure a temperature of material flowing through the enclosed passageway of the static mixer thereby forming a closed loop control system of the steam flow control valve responsive to the measured temperature.

5. (Previously Presented) The apparatus of claim 1 further comprising a steam flow pressure control valve to control a pressure of steam supplied to the steam inlet from a steam source.

6. (Previously Presented) The apparatus of claim 5 further comprising a pressure transmitter disposed to measure the pressure of steam supplied from the steam flow pressure control valve thereby forming a closed control system of the steam flow pressure control valve to maintain the pressure of the steam supplied to the steam inlet.

7. (Previously Presented) The apparatus of claim 1 further comprising:
a condensate mixer operably configured to mix a condensate with the steam; and
a condensate flow control valve to control a supply of the condensate to the condensate mixer.

8. (Previously Presented) The apparatus of claim 7 further comprising a temperature transmitter disposed to measure a temperature of a steam supply to the steam inlet thereby forming a closed loop control system of the condensate flow control valve to control the supply of the condensate to the steam supply to the steam inlet responsive to the measured temperature.

9. (Currently Amended) Apparatus for heating a bitumen froth by steam, the apparatus comprising:

a heater body comprising a bitumen froth inlet for receiving bitumen froth, a steam inlet for receiving steam, and a mixture outlet;

a steam pressure flow control valve to control a pressure of steam supplied to the steam inlet from a steam source;

a condensate mixer operably configured to mix a condensate with the steam from the steam source;

a condensate flow control valve to control a supply of the condensate to the condensate mixer;

~~a steam flow control valve to control a rate of steam supply to the steam inlet from the steam source;~~

~~a baffle disposed across the mixture outlet; and~~

a static mixer body having first and second spaced ends and forming an enclosed passageway extending between the first and second ends, wherein the first end is in communication with the mixture outlet, the static mixer body supporting a plurality of baffles disposed to effect a mixing action of material flowing through the static mixer;

a temperature transmitter disposed to measure at least one of (a) a temperature of material flowing through the enclosed passageway, and (b) a temperature of material flowing out the second end of the enclosed passageway; and

a steam flow control valve to control a rate of steam supply to the steam inlet from the steam source in response to the temperature of the bitumen froth and steam measured by the temperature transmitter;

wherein the steam inlet is disposed to inject the steam into the heater body towards the enclosed passageway in a direction generally parallel to the longitudinal axis of the enclosed passageway; and

wherein the apparatus is operably configured to direct substantially all of the bitumen froth and steam through the mixture outlet, into the enclosed passageway and out the second end of the static mixer body, including when the enclosed passageway is disposed parallel or about parallel to the horizontal axis.

10. (Currently Amended) The apparatus of claim 9 wherein the baffles are disposed within the static mixer body to impart a lateral, radial, tangential or circumferential directional component to a material flow through said enclosed passageway that changes repeatedly along the length of the static mixer-enclosed passageway.

11. (Currently Amended) The apparatus of claim 9 wherein the a temperature transmitter is disposed to measure both (a) the temperature of material flowing through the enclosed passageway, and (b) the temperature of material flowing out the second end of the enclosed passageway further comprising a temperature transmitter disposed to measure a temperature of material flowing through the second end of the passage forming a closed-loop control system with the steam flow control valve to control the supply of steam to the material.

12. (Currently Amended) The apparatus of claim 9 further comprising a pressure transmitter disposed to measure a pressure of steam supplied to the steam inlet from the steam

source and forming a closed loop control system of the steam pressure flow control valve to control the supply of steam to the steam inlet in response to the measured pressure.

13. (Currently Amended) The apparatus of claim 9 further comprising a further temperature transmitter disposed to measure a temperature of steam supplied to the steam inlet and forming a closed loop control system of the condensate flow control valve to control the supply of condensate to the mixing means in response to the measured temperature.

14 to 24. (Cancelled)

25. (Previously Presented) The apparatus of claim 1 further comprising a steam source operably configured to deliver steam to the steam inlet at about 90 psi.

26. (Currently Amended) The apparatus of claim 3 further comprising a wherein the steam source is-operably configured to deliver steam to the steam flow control valve at about 90 psi.

27. (Currently Amended) The apparatus of claim 5 wherein the steam flow pressure control valve source-is operably configured to deliver steam to the steam inletflow pressure control valve at about 90 psi.

28. (Currently Amended) The apparatus of claim 9 wherein the steam pressure flow control valve source-is operably configured to deliver steam to the steam inlet at about 90 psi.

29. (New) The apparatus of claim 1, further comprising a baffle disposed across the mixture outlet.

30. (New) The apparatus of claim 9, further comprising a baffle disposed across the mixture outlet.